



Integrated Public Alert and Warning System

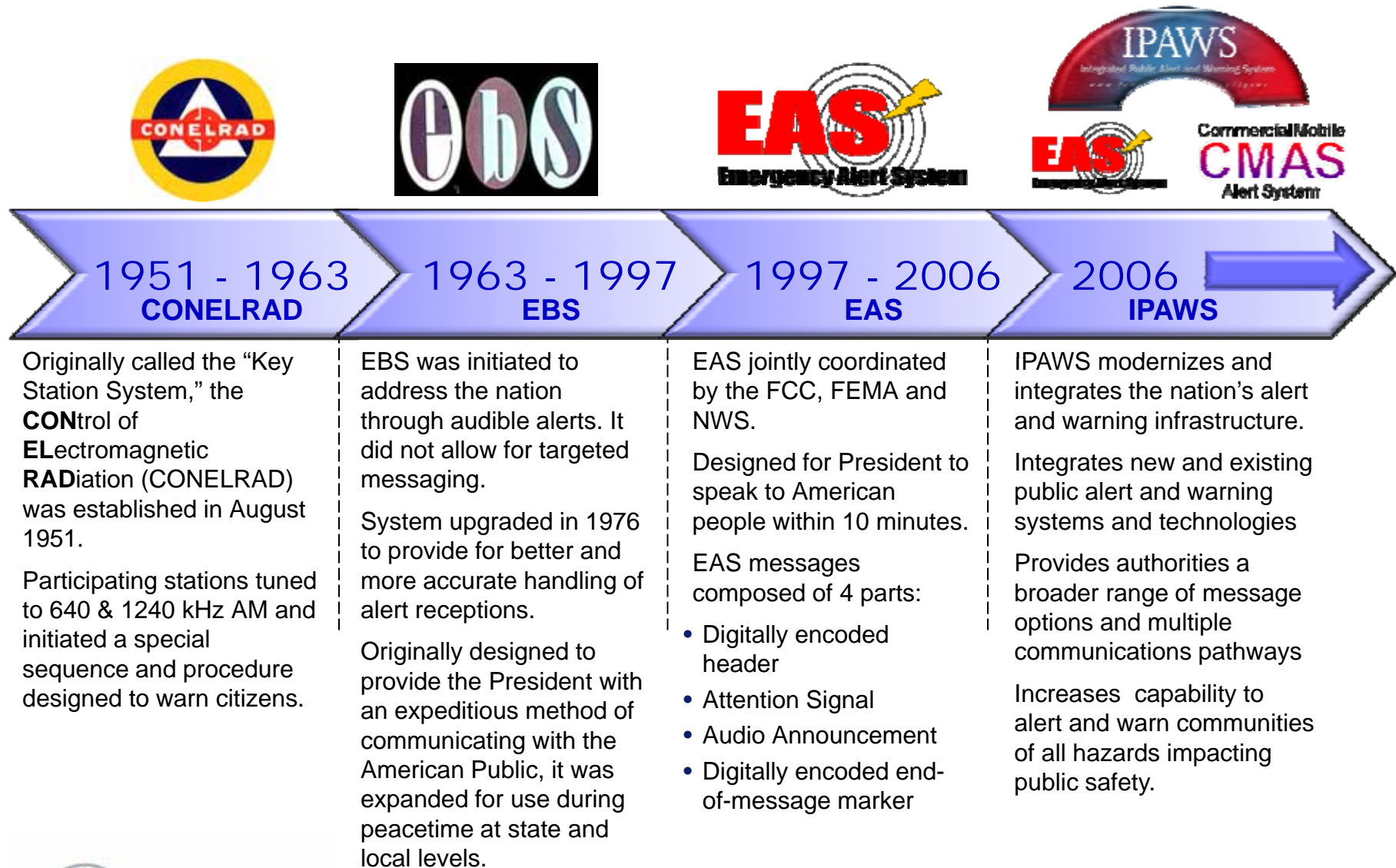
Get Alerts, Stay Alive

CSEPP Meeting

16 February 2011



The Evolution of Emergency Broadcasting



IPAWS Federal Guidance -

Executive Order 13407 states:

“It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people...”

“establish or adopt, as appropriate, common alerting and warning protocols, standards, terminology, and operating procedures for the public alert and warning system to enable interoperability and the secure delivery of coordinated messages to the American people through as many communication pathways as practicable...”

“administer the Emergency Alert System (EAS) as a critical component...”

“ensure that under all conditions the President of the United States can alert and warn the American people.”

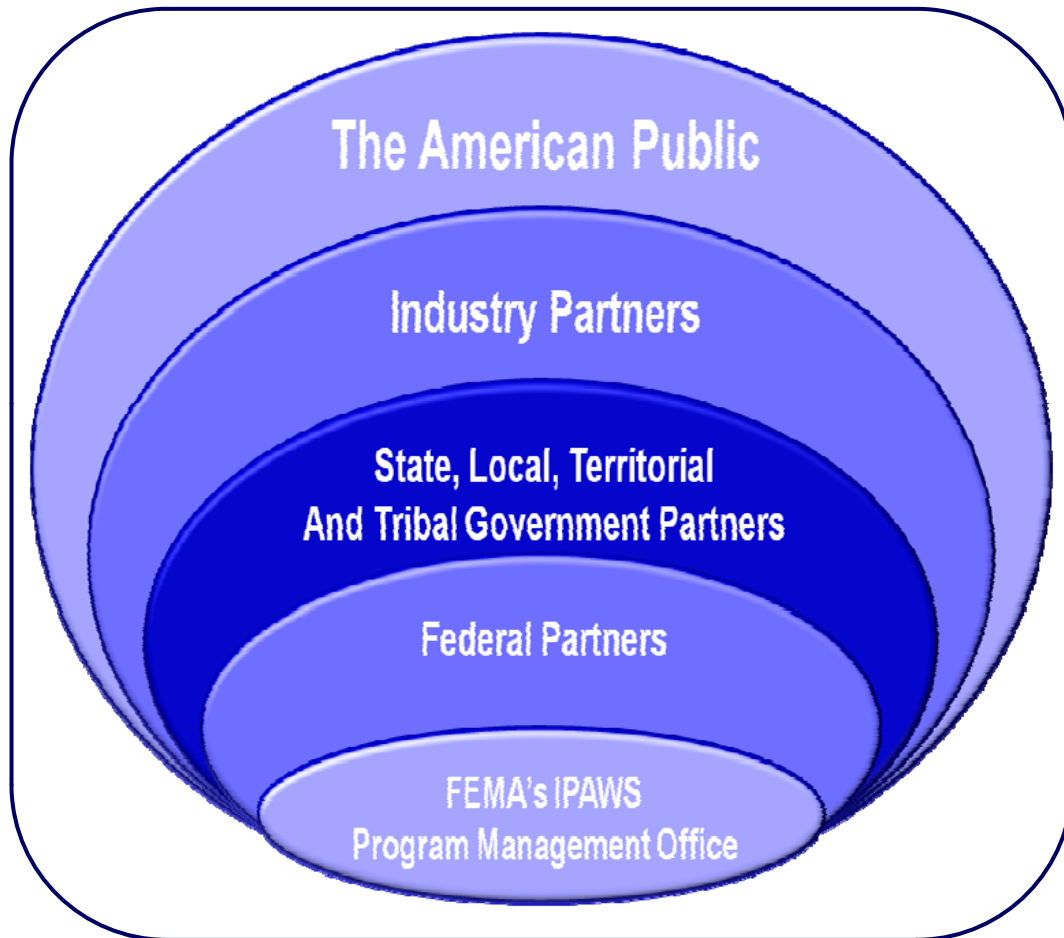
1995 Presidential EAS Statement of Requirements states:

“The national level EAS must be: Fully integrated from the national to local level, yet capable of independent local (Priority Two) and state (Priority Three) operations”

**The IPAWS Program Management Office was formed to implement
Executive Order 13407**



IPAWS Stakeholders



IPAWS Strategic Plan

Vision

Timely alert and warning to American citizens in the preservation of life and property.

Mission

Provide integrated services and capabilities to Federal, State, territorial, tribal, and local authorities that enable them to alert and warn their respective communities via multiple communications methods.

Goals

- Goal 1 – Create and maintain an integrated interoperable environment for alert and warning
- Goal 2 – Make Alert and Warning More Effective
- Goal 3 – Strengthen the Resilience of IPAWS Infrastructure



FEMA

IPAWS Vision

*Timely Alert And Warning To American Citizens In
The Preservation of Life And Property*



**Alerting Authorities;
Federal, State,
territorial, tribal,
and local**



IPAWS Alert Aggregators



Television



Radio



Cell Phone



Computer



Home Phone

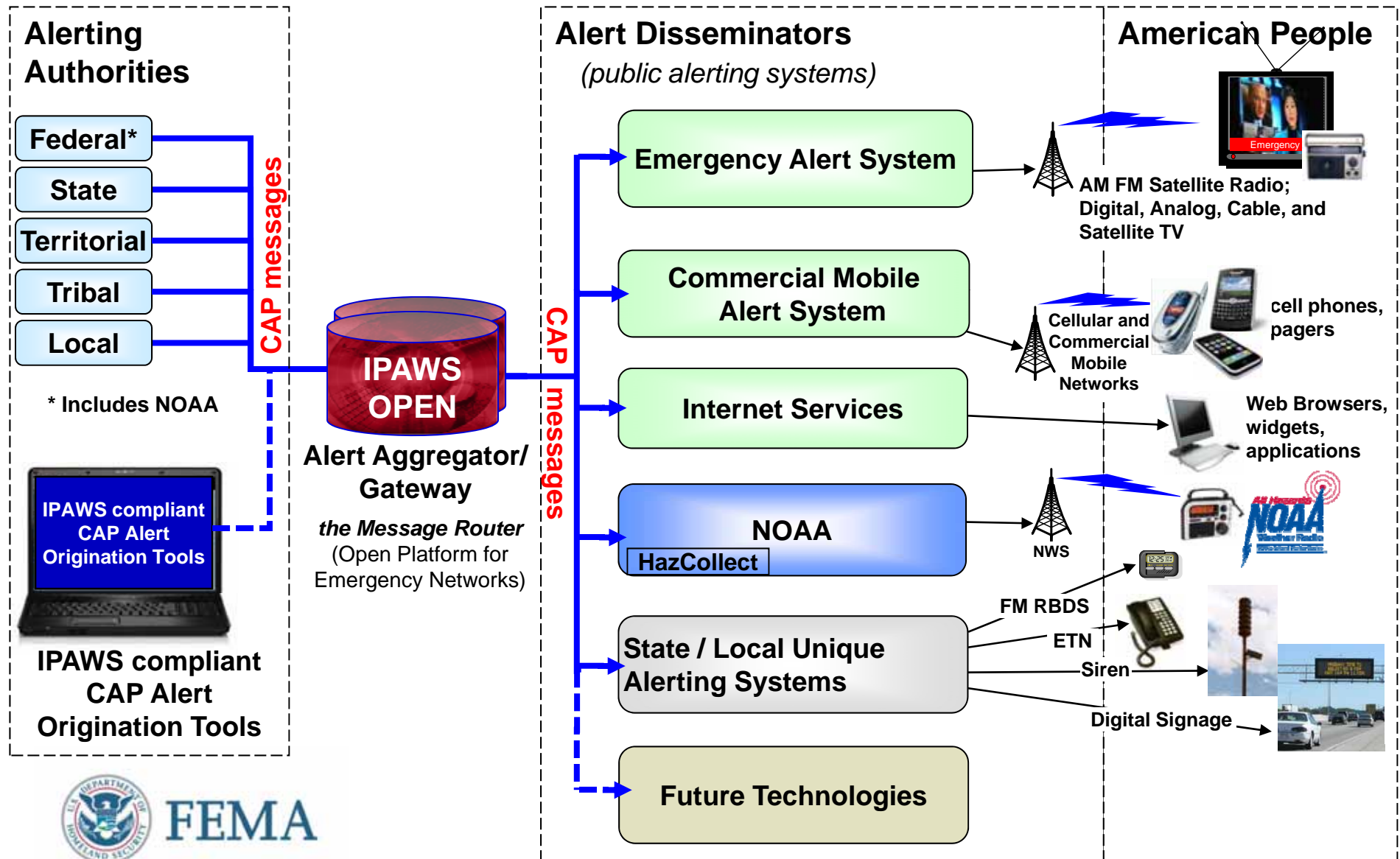


Public Signage



IPAWS Architecture

Standards Based Alert Message protocols, authenticated alert message senders, shared, trusted access & distribution networks, alerts delivered to more public interface devices



IPAWS-OPEN (formerly DM-OPEN 2.0)

- ▶ Open Platform for Emergency Networks (OPEN)
 - Formerly the “interoperability” part of DMIS
 - Currently deployed in FEMA data center as IPAWS-OPEN
 - Provides authenticated “alerting authorities” access to EAS, CMAS, NOAA, internet public alerting systems
 - Uses CAP and EDXL-DE messaging standards
 - Authenticated systems can also exchange messages with each other
 - Gives responders freedom to choose software that best suits their needs
 - Users need software with connection to IPAWS
 - Currently signed testing agreements –
webEOC, DisasterLan, E-Team, CodeRED, TwentyFirst Century Communications, MyStateUSA, others



Framework (formerly DM-Framework, formerly DMIS-Tools)

- ▶ CURRENTLY STILL IN DEVELOPMENT
 - replaces the existing DMIS Tools
 - Browser-based, web interface - No client software required
 - Accessible across the full spectrum of computer operating system
- ▶ Framework development has encountered some hurdles



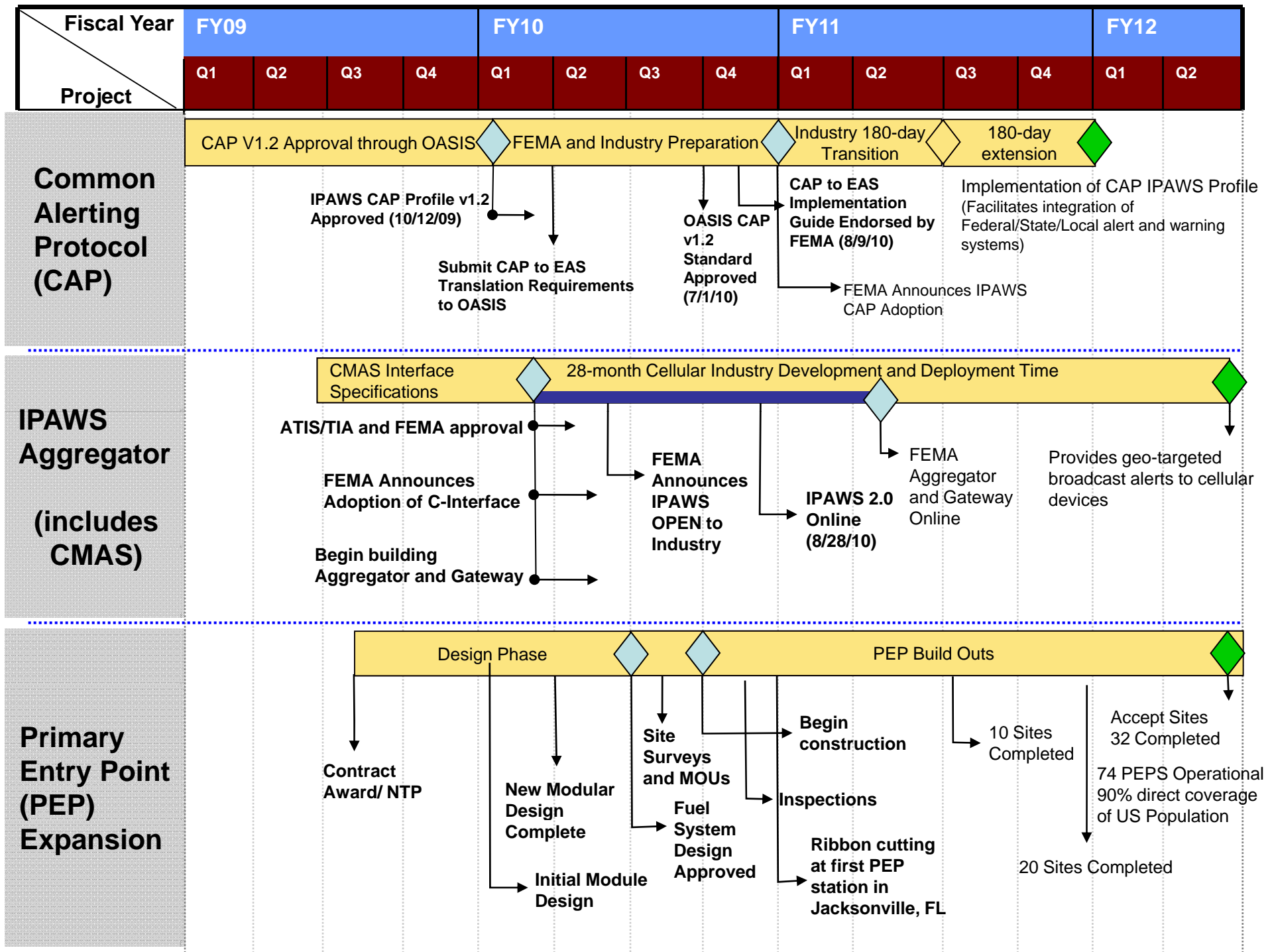
IPAWS Project Areas

- ▶ Emergency Alert System – modernization and expansion of EAS - implementation of next generation digital format for distribution of alerts; the Common Alerting Protocol (CAP); doubling of FEMA connected Primary Entry Point (PEP) stations to provide direct EAN broadcast coverage to 90% + of the United States population
- ▶ Commercial Mobile Alert System (CMAS) – system enabling alert authorities access to cellular networks for broadcast of alert messages in text format (capability is alert message broadcast to a location, not a subscription SMS based service)
- ▶ IPAWS Alert Aggregator (OPEN) – a CAP message broker and dissemination gateway providing authenticated alert authorities at all levels (federal state territorial, tribal, local) access to public communications networks for dissemination of alert and warning information
- ▶ Integration of capabilities and access with NOAA capabilities – weather alerting systems
- ▶ Training Development and Outreach - to alerting officials, private sector partners, and the American public
- ▶ Study and Development of better alerting capabilities – focus on alerting for Americans with functional and special access needs and non-English speakers

IPAWS is enhancing and modernizing the National EAS system while developing additional capabilities that will be available for use by all levels of alert authority (digital alert distribution to broadcasters, cellular broadcast alerts, integration with NOAA networks)

IPAWS does not replace local alerting systems. Through integration, IPAWS can provide additional capabilities to local alerting authorities.





IPAWS Accomplishments

- ▶ **IPAWS Technical Specification to Common Alerting Protocol v1.2 (Completed – Nov 2009)**
- ▶ **Commercial Mobile Alerting System Interface Specification (Completed – Dec 2009)**
- ▶ **Conducted live code test of national EAS (EAN) in Alaska (Completed – Jan 2010; 2nd test completed Jan 2011)**
- ▶ **First Expansion Primary Entry Point station brought online (31 August 2010)**
- ▶ **IPAWS OPEN v 2.0 brought online in FEMA data center (29 August 2010)**
- ▶ **Accepted the ECIG CAP to EAS Implementation Guide (August 2010)**
 - ▶ Document available at: <http://www.eas-cap.org/documents.htm>
- ▶ **Formally adopted Common Alerting Protocol (CAP v1.2) (September 2010)**

Moving Forward:

- ▶ **Expansion of FEMA IPAWS PEP coverage**
- ▶ **Conformance testing of vendor products to IPAWS CAP Profile (Initial report due March 2011)**
 - ▶ Lab web site/vendor application at: <https://www.nimssc.org/ipawskonform/default.asp>
- ▶ **IPAWS CMAS Gateway available for carrier testing (Feb 2011)**
- ▶ **Inventory of State and Local EOC Alert and Warning Capabilities**
- ▶ **Nationwide test of the national Emergency Alert System (2011)**



Comments and Questions

► **IPAWS Website** - <http://www.fema.gov/emergency/ipaws>

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Backup and Additional Information



General Q&A

- ▶ How do I use IPAWS?
 - Through IPAWS you can alert the public of **imminent threat** situations
 - Through IPAWS you can obtain situational awareness via messages sent by others
- ▶ What do I need? How much will it cost?
 - **CAP** based message origination tool (costs vary based on licenses, features, etc)
 - Reliable internet connection
 - Membership in an active Collaborative Operating Group (**COG**)
 - IPAWS training is required (provided for free)
 - Use of IPAWS is **free** to authorized agencies/alert originators
- ▶ How do I take advantage of CMAS?
 - Imminent threat messages will be carried by participating commercial mobile carriers
- ▶ When does IPAWS go into production?
 - Aggregation service is online now
 - CMAS will be available March 2012



What is a CAP message?

- ▶ CAP is a structured, organized way to arrange alert information
 - Information is organized using XML tags
 - Human read-able as well as machine read-able
 - Standardized format simplifies message creation and consumption
- ▶ Specific features of CAP
 - Many CAP elements constrain input to standardize terminology
 - Can be digitally signed to assure message integrity (tamper-proof)
 - Message can carry alternate languages, text, and metadata for unique operations
- ▶ Current usage and acceptance
 - Open international standard available to all vendors, users, organizations
 - Adopted by FEMA, DoD, Public Safety Canada
 - Over 100 vendor products are, or will be CAP based



IPAWS CAP Specifications

- ▶ Three documents define CAP for IPAWS:

- The OASIS CAP Standard v1.2

- Organization for the Advancement of Structured Information Standards

OASIS web site - <http://www.oasis-open.org>

CAP Standard: <http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2.pdf>

- IPAWS Specification to the CAP Standard (CAP v1.2 IPAWS USA Profile v1.0)

Available on the OASIS web site at:

<http://docs.oasis-open.org/emergency/cap/v1.2/ipaws-profile/v1.0/cap-v1.2-ipaws-profile-v1.0.pdf>

- CAP to EAS Implementation Guide

Developed by the EAS-CAP Industry Group (ECIG)

ECIG web site <http://www.eas-cap.org>

CAP to EAS Implementation Guide link:

http://www.eas-cap.org/ECIG-CAP-to-EAS_Implementation_Guide-V1-0.pdf

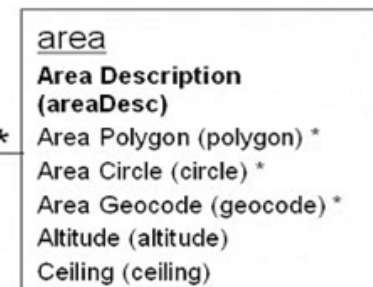
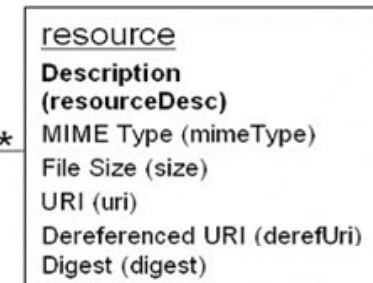
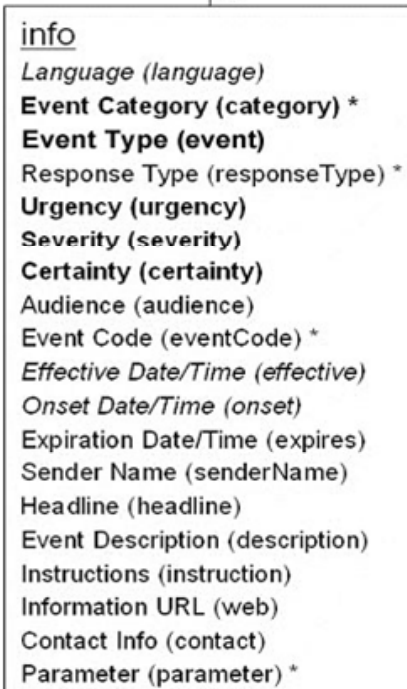


Structure of CAP message

Alert Block



Info Block



Example of a CAP message in native format

Begin
Alert Block

Begin
Info Block

```
<alert>
  <identifier>MSU-3292aca8-949f-4336-a825-ecf6872a8405</identifier>
  <sender>ClarkCountyEOC</sender>
  <sent>2010-07-20T04:41:00-07:00</sent>
  <status>Actual</status>
  <msgType>Alert</msgType>
  <scope>Public</scope>
  <info>
    <category>CBRNE</category>
    <event>Civil Emergency Message</event>
    <responseType>Evacuate</responseType>
    <urgency>Immediate</urgency>
    <severity>Severe</severity>
    <certainty>Possible</certainty>
    <headline>The danger of further dispersal of the radiation from the initial attacks, or new
      attacks, has passed and further attacks are not anticipated</headline>
    <description>This is a demonstration only message. The danger of further dispersal of the
      radiation from the initial attacks, or new attacks, has passed and further attacks are not
      anticipated at this time</description>
    <instruction>Do not take action based on this message.</instruction>
    <area>
      <areaDesc>National Emergency</areaDesc>
      <polygon>47.57652571374621,-66.884765625 25.562265014427492,-79.892578125
        32.32427558887655,-119.619140625 49.32512199104001,-125.947265625
        49.49667452747044,-97.03125 49.210420445650286,-89.384765625</polygon>
    <geocode>
      <valueName>SAME</valueName>
      <value>011001</value>
    </geocode>
  </area>
</info>
</alert>
```



FEMA

Example of a CAP message in a CAP authoring tool or emergency management software

Alert Block

ALERT DETAILS	
Alert Block	
Sender:	ClarkCountyEOC
Sent:	2010-08-04T05:18:00-07:00
Status:	Actual Exercise System Test Draft
Message Type:	Alert Update Cancel Ack Error
Source:	DemoOnlyWatchOfficer@ClarkCounty.nv.us
Scope:	Public Restricted Private

Info Block

ALERT INFO	
Info Block	
Language:	English-US
Category:	Env Transport Infra CBRNE Other
Event:	Civil Emergency Message
Response Type:	Evacuate Prepare Execute Monitor None
Urgency:	Immediate Expected Future Past Unknown
Severity:	Extreme Severe Moderate Minor Unknown
Certainty:	Observed Likely Possible Unlikely Unknown
Add Event Code	
Sender Name:	1737,Clark County,NV
Headline:	The danger of further dispersal of the radiation
Description:	This is a demonstration only message. The da
Instruction:	Do not take action based on this message.
Add Area	
Area Desc:	National Emergency
Polygon:	47.57652571374621,-66.884765625 25.562265014427492,-79.892578125 32.32427558887655,-119.619140625 49.32512199104001,-125.947265625
Add Geocode	
Value Name:	SAME
Value:	011001



What is a Collaborative Operating Group (COG)?

- ▶ A group of operators with the same AOR...a Community of Interest
- ▶ COGs help organizations...
 - Coordinate actions
 - Communicate quickly
 - **Share information**
 - Enhance incident reporting
- ▶ COGs support collaboration
 - Internal collaboration (incident management)
 - External collaboration (situational awareness)
- ▶ Local **SOPs** define your COG configuration and policies



Examples of a Collaborative Operating Group (COG)

- Entire state or county Emergency Management (EM) Office
- Divisions of an EM Organization
- Local fire departments
- Federal agencies
- Military units
- Public or private consulting organization that participate in Consequence Management
- A single individual
- Any combination of these (or similar entities) as necessary to maintain the desired level of collaboration.
- Individuals can be members of **multiple COGs**

